

REMARKS/ARGUMENTS

The Examiner is thanked for the thorough examination and search of the subject.

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Claims 242-248 and 250-288 are pending; Claims 242-244, 246-247, 256-261 and 268 have been currently amended; Claims 275-288 have been newly added; Claims 253, 255, 265, 267, 272 and 274 have been withdrawn; Claims 1-241 and 249 have been canceled. No new matter is believed to have been added.

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Response to Claim Rejections under 35 U.S.C. 102 and 103

Applicants respectfully traverse the rejections for at least the reasons set forth below.

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Response to Claims 242, 245-248, 250-256 and 283-285

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As currently amended, independent Claim 242 is recited below:

242. A method for fabricating a chip package comprising:

joining a die and a substrate, wherein said die has a top surface at a horizontal level, wherein said die and said substrate are under said horizontal level;

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after said joining said die and said substrate, forming a patterned circuit layer over said horizontal level, wherein said patterned circuit layer extends across an edge of said die;

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after said joining said die and said substrate, forming a passive device over said substrate and over said horizontal level, wherein said passive device comprises a part not directly over any die; and

after said forming said patterned circuit layer and said forming said

passive device, separating said substrate into multiple portions.

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Reconsiderations of Claims 242, 254 and 256 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi (U.S. Pat. No. 6,867,499), of Claim 245 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Towle et al. (U.S. Pub. No. 2002/0074641), of Claims 250-253 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Saia et al. (U.S. Pat. No. 5,874,770), of Claims 246 and 247 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Farquhar et al. (U.S. Pat. No. 6,329,713), and of Claim 255 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Nuytkens et al. (U.S. Pat. No. 6,838,750) are requested in accordance with the following remarks.

Applicants respectfully assert that the method claimed in Claim 242 patentably distinguishes over the citation by Tabrizi (U.S. Pat. No. 6,867,499).

The Examiner considers that “Tabrizi does not appear to explicitly disclose that its passive is entirely not directly over (e.g. understood to mean to left or right) said die. However since placement of a capacitor to either the left or right of die would not modify the operation of the device and applicant has not disclosed that the placement is for any unobvious or critical reasons, the rearrangement of the capacitor would have been obvious since it has been held that the mere shifting of parts without providing modification to the device are obvious.” ~ See lines 15-21 on page 4, in the last Office Action mailed Mar. 19, 2008 ~

Applicants teach the claimed subject matter of a passive device comprising a part not directly over any die, as currently claimed in Claim 242, which leads the interference between the passive device and a die to be reduced. For example, if a capacitor comprises a part not directly over any die, the parasitic capacitance between a lower plate of the capacitor and a circuit layer in a die can

be reduced. Therefore, placement of a passive device to either left or right of a die modifies the operation. The advantage is unobvious over the teaching by Tabrizi. Tabrizi teaches that “passive elements such as resistors, capacitors, and inductors may be added on a redistribution layer or on the additional dielectric layers to provide a higher-level integrated electronic component.” ~ See col. 5, lines 1-4 ~ Tabrizi fails to teach, hint or suggest that the passive elements may have a part not directly over a die 12 because Tabrizi fails to teach the above-mentioned advantage. If the Examiner considers that the claimed subject matter can be anticipated, showing an evidence is respectfully requested.

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Withdrawal of Rejection under 35 U.S.C. 103(a) to Claim 242 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 242 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 245-248, 250-256 and 283-285 patently define over the prior art as well.

Response to Claims 243, 257-268 and 286-288

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As currently amended, independent Claim 243 is recited below:

243. A method for fabricating a chip package comprising:

providing a first die having a first top surface at a horizontal level;
providing a second die having a second top surface at said horizontal level;
forming a polymer between said first and second dies;
after said forming said polymer, forming a passive device over said horizontal level, wherein said passive device has a first connection point connected to said first die; and
after said forming said passive device, forming a metal bump over

said horizontal level, wherein said metal bump is connected to a second connection point of said passive device.

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5 *Reconsiderations of Claims 243, 261, 266 and 268 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi (U.S. Pat. No. 6,867,499), of Claim 257 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Towle et al. (U.S. Pub. No. 2002/0074641), of Claims 262-265 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Saia et al. (U.S. Pat. No. 5,874,770), and of Claims 258 and 259 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Farquhar et al. (U.S. Pat. No. 6,329,713) are requested in accordance with the following remarks.*

15 Applicants respectfully assert that the method claimed in Claim 243 patentably distinguishes over the citation by Tabrizi (U.S. Pat. No. 6,867,499).

20 The Examiner considers that Tabrizi teaches a passive component is connected to both a bump and a contact point of a chip. ~ See lines 8 and 9 on page 4, in the last Office Action mailed Mar. 19, 2008 ~

25 Applicants respectfully traverse the Examiner's opinion because Tabrizi fails to teach that a passive device has a first connection point connected to a die and a second connection point connected to a bump, as currently claimed in Claim 243. Tabrizi teaches that "passive elements such as resistors, capacitors, and inductors may be added on a redistribution layer or on the additional dielectric layers to provide a higher-level integrated electronic component." ~ See col. 5, lines 1-4 ~ Tabrizi fails to teach, hint or suggest that one of the passive elements may have a first connection point connected to a die and a second connection point connected to a bump. If the Examiner considers that the claimed subject matter can be anticipated, showing an evidence is respectfully requested.

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Furthermore, Tabrizi fails to teach, hint or suggest the process sequence of forming a passive component and a metal bump 21. ~ See col. 5, lines 1-4 ~ It is believed that the claimed subject matter of after forming a passive device, forming a metal bump, as currently claimed in Claim 243, is not taught by Tabrizi.

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Withdrawal of Rejection under 35 U.S.C. 103(a) to Claim 243 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 243 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 257-268 and 286-288 patently define over the prior art as well.

Response to Claims 244 and 269-282

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As currently amended, independent Claim 244 is recited below:

244. A method for fabricating a chip package comprising:

providing a first die having a first top surface at a horizontal level;
providing a second die having a second top surface at said horizontal level;

forming a polymer between said first and second dies;
after said forming said polymer, forming a passive device over said horizontal level, wherein said passive device has a part not directly over any die;

after said forming said passive device over said horizontal level, forming an insulating layer on said passive device; and

after said forming said polymer, forming a patterned circuit layer over said horizontal level, wherein said patterned circuit layer extends across an edge of said first or second die.

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Section I

5 *Reconsiderations of Claims 244 and 269 rejected under 35 U.S.C. 102(e) as being anticipated by Saia et al. (U.S. Pat. No. 6,874,770), and of Claim 273 rejected under 35 U.S.C. 103(a) as being unpatentable over Saia et al. in view of Tabrizi (U.S. Pat. No. 6,867,499) are requested in accordance with the following remarks.*

10 Applicants respectfully assert that the method claimed in Claim 244 patentably distinguishes over the citation by Saia et al. (U.S. Pat. No. 6,874,770).

15 Saia et al. teach that after providing a passive device 28, 33 or 37 over a horizontal level defined by a top surface of a die 44, a polymer 45 is formed enclosing the die 44. However, Saia et al. fail to teach, hint or suggest the claimed subject matter of after forming a polymer between a first die and a second die, forming a passive device over a horizontal level defined by a top surface of the first die, as currently claimed in Claim 244.

20 Withdrawal of Rejection under 35 U.S.C. 102(e) to Claim 244 is respectfully requested.

25 For at least the foregoing reasons, applicants respectfully submit independent Claim 244 patentably distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 269-282 patentably define over the prior art as well.

Section II

30 *Reconsiderations of Claim 244 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabrizi (U.S. Pat. No. 6,867,499), and of Claim 274 rejected*

under 35 U.S.C. 103(a) as being unpatentable over Tabrizi in view of Nuytkens et al. (U.S. Pat. No. 6,838,750) are requested in accordance with the following remarks.

5 Applicants respectfully assert that the method claimed in Claim 244 patentably distinguishes over the citation by Tabrizi (U.S. Pat. No. 6,867,499).

 The Examiner considers that Tabrizi teaches an insulating layer is formed on a passive component. ~ See lines 4-6 on page 4, in the last Office Action
10 mailed Mar. 19, 2008 ~

 Applicants respectfully traverse the Examiner's opinion because Tabrizi fails to teach that an insulating layer is formed on a passive component, as currently claimed in Claim 244. Tabrizi teaches that "passive elements such as
15 resistors, capacitors, and inductors may be added on a redistribution layer or on the additional dielectric layers to provide a higher-level integrated electronic component." ~ See col. 5, lines 1-4 ~ Based on Tabrizi's teaching, a discrete passive device could be known by those skilled in the art to be formed on a redistribution layer 22 or on a dielectric layer 25. However, based on Tabrizi's
20 teaching, those skilled in the art could not have a concept that the redistribution layer 22 is patterned with a passive device. If the Examiner considers that the claimed subject matter can be anticipated, showing an evidence is respectfully requested. It is believed that the claimed subject matter of after forming a passive device over a horizontal level defined by a top surface of a die, forming an
25 insulating layer on a passive device, as currently claimed in Claim 244, can not be anticipated by Tabrizi.

 The Examiner considers that "Tabrizi does not appear to explicitly disclose that its passive is entirely not directly over (e.g. understood to mean to left or right)
30 said die. However since placement of a capacitor to either the left or right of die would not modify the operation of the device and applicant has not disclosed that

the placement is for any unobvious or critical reasons, the rearrangement of the capacitor would have been obvious since it has been held that the mere shifting of parts without providing modification to the device are obvious.” ~ *See lines 15-21 on page 4, in the last Office Action mailed Mar. 19, 2008* ~

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Applicants teach the claimed subject matter of a passive device comprising a part not directly over any die, as currently claimed in Claim 244, which leads the interference between the passive device and a die to be reduced. For example, if a capacitor comprises a part not directly over any die, the parasitic capacitance between a lower plate of the capacitor and a circuit layer in a die can be reduced. Therefore, placement of a passive device to either left or right of a die modifies the operation. The advantage is unobvious over the teaching by Tabrizi. Tabrizi teaches that “passive elements such as resistors, capacitors, and inductors may be added on a redistribution layer or on the additional dielectric layers to provide a higher-level integrated electronic component.” ~ *See col. 5, lines 1-4* ~ Tabrizi fails to teach, hint or suggest that the passive elements may have a part not directly over a die 12 because Tabrizi fails to teach the above-mentioned advantage. If the Examiner considers that the claimed subject matter can be anticipated, showing an evidence is respectfully requested.

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Withdrawal of Rejection under 35 U.S.C. 103(a) to Claim 244 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 244 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 269-282 patently define over the prior art as well.

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CONCLUSION

Some or all of the pending claims are believed to be in condition for

Appl. No. 10/055,560
Amdt. dated June 19, 2008
Reply to Office action of March 19, 2008

Allowance, and that is so requested.

Sincerely yours,

5 Winston Hsu

Date: 06/19/2008

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